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Macroeconomic Adjustment and Growth

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Understanding the Investment Cycle in Adjustment Programs

Evidence from Reforming Economies

Andrés Solimano

Private investment often goes through three phases under adjustment programs: initial contraction (a period of one to two years), a long pause (for three to five years), and sustained recovery. The length of the investment pause is longer for low-income countries, and the cycle of public investment is of greater amplitude than the cycle of private investment. The paper discusses the roles of macroeconomic restraint, coordination failures, value of waiting, and lack of supportive infrastructure in generating these cycles of investment.

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This paper — a product of the Macroeconomic Adjustment and Growth Division, Country Economics Department — is part of a larger effort in the department to study the role of capital formation in the transition from adjustment to growth. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room N11-061, extension 39361 (May 1992, 43 pages).

Solimano reviews recent literature on capital formation and economic reform and looks at the cycle of private investment that occurs during adjustment. He identifies three phases in the response of private investment to adjustment programs: initial contraction, a long pause, and sustained recovery.

The empirical evidence for Chile, Mexico, and Thailand shows that the initial contraction lasts from one to two years and the pause for three to five years. Moreover, the length of the investment pause is longer for low-income countries such as Bolivia and Ghana. And the cycle of public investment is of greater amplitude than the cycle of private investment.

In characterizing the cycles of investment, Solimano assesses the role of such factors as demand restraint, currency depreciation, the value of waiting, credibility failures, and the lack of supportive infrastructure.

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1. Introduction

Economic reform, involving the reshaping of incentives and institutions, is a long and time-consuming process. Moreover, this reform is often punctuated with adverse external shocks, stubborn stabilization, and political setbacks, so that the build-up of domestic confidence takes time. In many countries, the slow recovery of private (let alone public) investment despite a decisive move to market-oriented reform, is increasingly evident in adjustment. In addition, a retreat in public investment throughout the eighties, part of it complementary with private investment, has been amply documented (see Faini and de Melo 1990; Serven and Solimano 1991).

These are worrisome trends. For economic adjustment to be sustainable, it needs to be accompanied by an increase in capital formation and productive capacities.

This paper takes a close look at the cycle of private investment that seems to take place during adjustment programs: for economies in a period of expansion before adjustment, initially private investment contracts following the adoption of the adjustment program, a contraction that may last between one and two years; then, in the second phase, private investment reaches a plateau characterized by the absence of any substantial increase (or further decline) in private investment, a period of investment depression that may last three or more years; then in the third phase, a more or less sustained increase in private investment occurs.

The experiences of countries undertaking economic reform reviewed in this paper show that it takes a half a decade or more for a reforming economy to resume growth, (albeit modest in some cases), while although in more problematic cases, e.g., Bolivia or Ghana, the recovery of investment and growth may take longer.

The next section of this paper looks at private and public investment rates in developing countries for the period 1970-89 to identify whether some significant reversal in the depressed trends of investment took place in the second half of the 1980s. Section 3 offers an analytical overview of the impact of adjustment and reform policies on private investment. In section 4,

an analysis of the performance of private investment -- in particular the shape and timing of the investment cycle described before -- is carried out for Chile, Mexico, Thailand, Bolivia and Ghana, all economies that have pursued comprehensive macro stabilization and liberalization policies, which are the core of the reform programs recommended by the Bretton Woods institutions. The paper closes in section 5 with some final remarks and highlights of the policy conclusions.

2. Investment in Developing Countries, 1970-89: A Look at the Numbers

Gross capital formation in developing countries slowed down sharply after the outbreak of the debt crisis in 1982 and remained depressed throughout the rest of the decade (table 1).[1] This trend holds for both public and private investment for the whole group of developing countries, though a recovery in private investment started to take place since 1987 (see figure 1). In contrast, public investment rates continued to decline throughout the decade. In 1989 the ratio of public investment to GDP was almost 3 points below its average level of the seventies. Total investment in the second half of the eighties did not increase, on average, with respect to 1982-84. Towards the end of the decade, fixed capital formation was still below its level of a decade before (figure 1).

At a regional level, private investment rates slightly recovered in Latin America in the period 1985-89 compared to 1982-84, while remaining relatively flat in Asia and Sub-Saharan Africa. As a share of GDP private investment was higher in Asia than in Latin America or in Sub-Saharan Africa throughout the eighties. This latter region consistently had the lowest levels of private investment.

Within Asia, the group of south-eastern countries (Korea, Thailand, Malaysia, Indonesia) out-performed the rest of the region in terms of higher private investment rates (and growth) throughout the period.

As Figure 1 shows, the incipient recovery of private investment after 1987 suggests a lag of more than five years in the investment response after the adjustment measures of the early-eighties -- certainly a quite delayed

Table 1
PRIVATE AND PUBLIC INVESTMENT IN DEVELOPING COUNTRIES, 1970-89
(as percent of GDP)

Investment Rate	1970-81	1982-84	1985-89
All Sample			
Private	12.2	10.6	9.9
Public	9.7	9.0	7.4
Total	21.9	19.6	17.3
Latin America 1/			
Private	11.8	8.9	9.2
Public	8.1	7.3	6.1
Total	19.9	16.2	15.3
Asia 2/			
Private	15.4	16.4	14.0
Public	8.9	10.8	8.5
Total	24.3	27.2	22.5
Sub-Saharan Africa 3/			
Private	10.1	7.4	7.2
Public	11.2	7.9	7.1
Total	21.3	15.3	14.3

Source: Pfeffermann and Madarassy (1990) and BESD World Bank. The averages are unweighted and include 41 developing countries.

1/ Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Mexico, Paraguay, Peru, Uruguay, Venezuela.

2/ Bangladesh, India, Indonesia, Republic of Korea, Malaysia, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand.

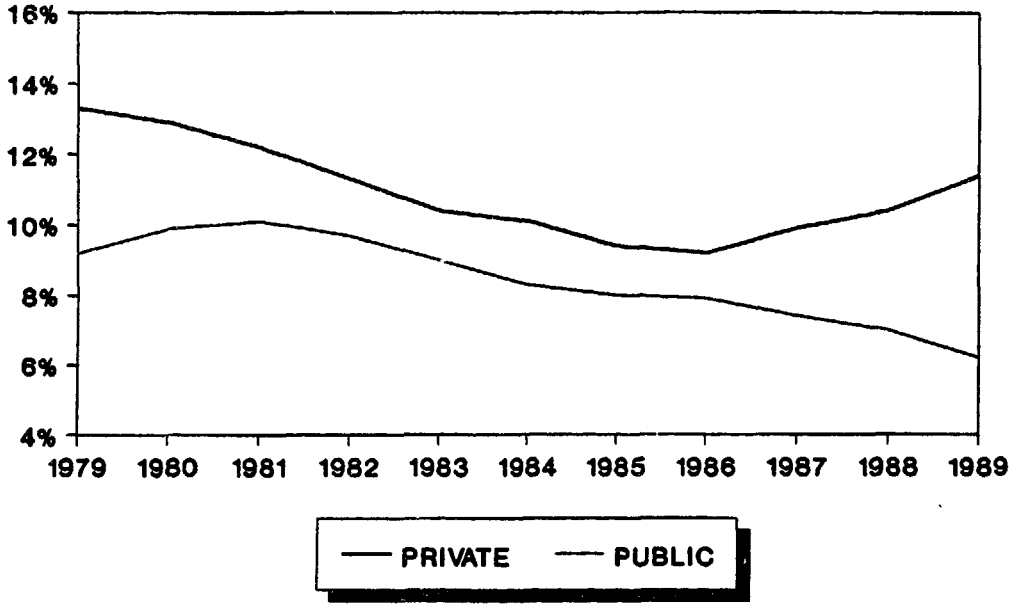
3/ Cote d'Ivoire, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Tanzania, Zaire, Zimbabwe.

Other countries included in the sample are Hungary, Tunisia and Turkey.

Figure 1

REAL PRIVATE AND PUBLIC INVESTMENT IN DEVELOPING COUNTRIES, 1979-1989.

(as percent of GDP)



Source: Pfefferman and Madarassy (1990)

response. Moreover, the post-1987 recovery is still modest. In turn, the continuing decline of public investment represents a worrisome trend that suggests an increased scrapping of public infrastructure with adverse implications for medium-term growth and for private capital accumulation as well, given the complementarity relationship between both types of investment.

3. Adjustment Policies and Private Investment: An Analytical Overview

A program of economic adjustment has two main components: (i) macroeconomic adjustment and stabilization; and (ii) structural reforms or liberalization. Macroeconomic adjustment aims to correct large macroeconomic imbalances such as unsustainable fiscal and/or current account deficits. In countries with high and/or erratic inflation, stabilization policies are also implemented. Structural adjustment (or liberalization) involves policies to improve the functioning of markets, open the economy to foreign competition, remove microeconomic distortions and change the regulatory environment the private sector faces. How these policies may affect investment is examined next.

3.1 Macroeconomic Adjustment and Stabilization[1]

An (unsustainable) current account deficit -- the basic imbalance that leads a country to go to an international lending institution -- entails an excess of investment over domestic savings (or an excess of domestic absorption over output). Cutting an external imbalance therefore requires a cut in investment relative to savings. Not surprisingly, initially investment may fall during adjustment unless most of the adjustment is accomplished through increased domestic savings. The balancing of fiscal accounts also requires an increase of revenues over spending. Very often the cut in spending by the public sector takes the form of a cut in capital expenditures.

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[1] A thorough survey of the literature on macroeconomic adjustment and private investment can be found in Serven and Solimano (1992).

Moreover, macroeconomic stabilization, including tight monetary and credit policies, will have an adverse short-run effect on private investment.

Restrictive Demand Policies

Restrictive monetary and credit policies are, in many cases, used as a substitute for fiscal adjustment to curb inflation. Tight money and credit adversely affects private investment through the higher real cost of bank credit and/or directly through the stock of real credit available to firms. Some empirical studies of investment in LDCs have found that the real interest rate has a direct effect on investment while others do not.[2] In the repressed financial markets that characterize many LDCs, credit policy affects investment directly through the stock of credit available to firms with access to preferential interest rates rather than through the indirect interest rate channel. Firms without access to subsidized credit are often forced to cancel some investment projects because of a lack of outside financing, to borrow in the unofficial money market and/or to finance investment through retained profits. Whatever the transmission mechanism of monetary and credit policy, the evidence suggests that tight credit policies cause aggregate spending to reduce chiefly through a cut in private investment.

The correction of fiscal deficits is a cornerstone of any adjustment program. In general high fiscal deficits tend to crowd out private investment through the higher real interest rates associated with increased government debt. Moreover, fiscal deficits financed through money creation hamper private capital formation, as (high) inflation is a powerful deterrent to investment because of its adverse effects on macroeconomic stability.

Thus, correcting fiscal deficits helps promote private investment. However, private investment may suffer in the transition period if the fiscal adjustment involves cutting complementary public investment. There is

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[2] Studies finding a significant effect of the real interest rate or the cost of capital on investment are de Melo and Tybout (1990), Greene and Villanueva (1990) and Solimano (1990). Studies finding a significant impact of the stock of real credit on investment demand are van Wijnbergen (1982), Blejer and Kahn (1984), Lim (1987) and Dailami (1990).

increasing empirical evidence from both individual country studies as well as a cross-section analysis of the complementarity relationships between public investment (mainly in infrastructure such as roads, ports, telecommunications) and private investment (see Blejer and Kahn 1984; Faini and de Melo 1990; Greene and Villanueva 1990; and Serven and Solimano 1992).

Empirical studies of investment behavior in LDCs show that investment responds strongly to changes in output. Interpreting this evidence as a short-term relationship (when the causality goes from output to investment) highlights the fact that restrictive demand policies that induce a recession and increase idle capacity in the economy are likely to have an adverse short-run impact on private investment.[3]

The initial downturn in economic activity often associated with macroeconomic adjustment may also affect investment through its effect on expectations. In fact, a current recession could form the basis for "pessimistic" expectations that lead investors to postpone investment until the recovery arrives; this delay in turn may prevent the take-off of investment (particularly for projects with short gestation lags) and delay the recovery itself. In this case, the economy may get stuck in a low investment equilibrium because of insufficient investment arising from self-fulfilling pessimism. Avoiding such an outcome is an important consideration in the design of restrictive demand policies that minimize their adverse impact on investment and growth.

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[3] The profitability of investment (the ratio of the market value of investment with respect to replacement costs) tends to be highly procyclical. It increases in upturns and falls in downturns; see Solimano (1989) for evidence in Chile.

Exchange Rate Policy

An important ingredient of most adjustment programs is a real devaluation of the exchange rate aimed at reducing external imbalances and promoting export and import-competing activities. In the 1980s many LDCs undertook sharp real depreciations of the exchange rate as part of their adjustment to the debt crisis. A real depreciation may affect both the level and composition of private investment.[4] It affects the level of private investment through two main channels: the real interest rate (or the real stock of credit) and real output.

A devaluation often raises the price level and depresses real balances (unless monetary policy is fully accommodative, pushing up the real interest rate up and investment down). In a similar way, a devaluation may reduce the real stock of credit and lead to a decline in investment through a direct credit crunch effect. Conversely, if the devaluation was anticipated and it eliminates the expectations of a devaluation, domestic real interest rates will fall and investment increase.

These two conflicting results are relevant in different settings. The former outcome is more likely in an economy with a closed capital account, while the second is more relevant in an economy with high capital mobility, where the domestic interest rates reflect the international rates, country risk and expectations of devaluation.

A second channel through which devaluation may affect the level of investment is its impact on aggregate demand. The literature on contractionary devaluation (Krugman and Taylor 1978; van Wijnbergen 1986; Solimano 1986; Edwards 1987; and Lizondo and Montiel 1989) emphasizes that the impact of a real devaluation on aggregate demand is dominated by its adverse income effects rather than by its substitution effects (which tend to be weak in the short te). A contraction in aggregate demand may come from a redistribution from wage earners (low savers) to profit recipients (high

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[4] A real depreciation may also have potentially important effects on the timing of investment, depending on the financial openness of the economy and the import content of capital goods (Dornbusch 1986 and Serven 1990).

savers) and also from real income transfers abroad, if the devaluation takes place when there is a trade deficit.[5] If the net effect of a currency devaluation is contractionary, then the slump in economic activity is likely to lead investors to cut investment spending. However, the contractionary devaluation is more likely to be short-term. In the medium run, when real exports to pick up after a real devaluation, an expansionary outcome for output and investment may result.

The composition of investment between tradeable and non-tradeable goods is also affected by a real depreciation. An increase in the relative price of traded relative to non-traded goods (if believed to be permanent) will encourage investment in the traded goods sector and depress it with home goods activities. The magnitudes of these effects will depend in part on the differences in the intensity of use of imported capital and intermediate goods between the two sectors.

The net impact of these sectoral effects on aggregate private investment also depends on the relative size of the traded goods sectors. In economies with a large export sector, such as Korea, a devaluation may be expansionary very quickly.

Empirical country studies on the impact of a real devaluation on private capital formation show a short-term contractionary effect followed by an expansion. Thus, a J-type dynamics characterizes investment after devaluation.[6] Regarding the evidence from panel data studies of investment, some show a negative effect of devaluation on investment, while others find

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[5] A real depreciation may also have adverse supply-side effects that lead to a contraction in output, such as the increased real cost (in terms of domestic goods) of imported inputs and the rise in working capital costs (because of increased interest rates).

[6] Individual country studies that consider the impact of devaluation on private investment are Branson (1986) for Kenya, Musalem (1989) for Mexico and Solimano (1989) for Chile.

that the variability of the real exchange rate -- rather than its level -- is a more important determinant of private investment.[7]

From the perspective of designing adjustment policies, it is important to be aware that the combination of restrictive demand policies and real depreciation may have a greater recessionary bias than expected under the standard assumption (often rejected empirically) that a devaluation is expansionary in the short term. In this case private investment (in addition to consumption) may temporarily be squeezed after a real depreciation.

3.2 Structural Reforms (Liberalization) and Private Investment

The other important component of adjustment programs is structural adjustment and liberalization policies. They are chiefly oriented to improving the quality of resource allocation, and therefore their main impact will occur in the medium and long run. This section briefly reviews the impact of three liberalization policies on private investment: (i) trade liberalization; (ii) financial reform; and (iii) privatization and business deregulation.

Trade Liberalization

Trade liberalization is central in most structural reform programs supported by the World Bank. It is aimed at improving resource allocation by pushing domestic prices toward international prices so as to reflect the true scarcity value of goods and services. Trade liberalization policies often involve the elimination of quotas (and other non-price barriers to trade) and a reduction in tariffs.

Import protection tends to increase the relative price of goods that use a scarce resource intensively (capital, in developing countries) so that implicitly the production of goods intensive in the use of the abundant

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[7] Multi-country econometric studies of investment in LDCs are: Greene and Villanueva (1990); Faini and de Melo (1990) and Serven and Solimano (1992) for a multi-regional sample; Larrain and Vergara (1991) for East Asia; and Cardoso (1991) for Latin America.

resource (labor) is taxed. Reducing import protection should lead to a contraction in capital-intensive activities and an increase in labor intensive ones. In that respect, a reduction in investment may be expected after trade liberalization. An increase in the productivity of investment may compensate for the possible reduction in the volume of investment as capital starts to flow to activities where resources have higher productivity (the sectors with comparative advantages).

If the reform under trade liberalization is not fully credible, the investment response may be affected. The private sector may perceive the trade liberalization as a temporary policy that has a significant probability of being reversed (to the former regime of higher protection). The reversal may come (among other reasons) because of the need to raise fiscal revenues or because a cut in tariffs led to an upsurge in imports that could not be financed. In this context, private investment may not respond at all or even fall. The chief reason is that private investors do not want to commit to physical investment, which is largely irreversible, unless they are confident the new trade regime will remain in place. Under uncertainty and a lack of policy credibility, the rational investor may prefer to shift to liquid assets (e.g., foreign exchange) that provide a cushion against changes in the structure of domestic incentives following a reversal in the trade liberalization. Clearly, those who invested in physical assets for activities that looked profitable under a more liberal trade regime are the first to lose in a return to protectionism.

Financial Reform

Financial reform seeks to improve the domestic capital market by lifting the controls over interest rates, allowing more freedom for entry and exit of financial intermediaries, and eliminating quantitative controls and subsidies on credit. The combination of positive real interest rates and liberalized financial systems is expected to improve the allocation of credit toward activities with higher rates of return, a shift that would improve the average

efficiency of investment. In addition, higher (or at least positive) real interest rates should mobilize savings.

The experience with financial liberalization is mixed. Chile, Argentina and Uruguay tried it in the mid-seventies, but the process led to an overexpansion of financial intermediation centered around financial instruments with short maturities and high returns rather than around long-term capital formation. Chile increasing domestic (and external) indebtedness and very high domestic real interest rates, that ultimately led to a financial crisis in 1982-83 that required massive bail outs by the central bank of troubled financial intermediaries, overindebted enterprises and households. Paradoxically, private investment boomed in the second half of the 1970s in Chile (see figure 2), in spite of the very high real interest rates. However, much of that investment was debt-led, and, as mentioned, many private investors had to be bailed out during the crisis of 1982-83. In the aftermath of the crisis -- the second half of the eighties -- the financial sector in Chile performed better as real interest rates receded to more moderate levels, financial supervision and regulation were strengthened, and very important the central bank cleaned the bad loans from the portfolios of commercial banks.

In contrast with the initial phase of financial liberalization in Chile, in Korea the financial reform (started in the mid-sixties) fared much better. Korea avoided the excesses other countries experienced with financial deregulation and achieved an increase in the rates of savings, investment and growth.

The scarce empirical evidence on the impact of positive higher real interest rates on the productivity of investment indicates that the effects are relatively slow to operate, and are more important over the medium and long run. In addition, the interest sensitivity of domestic savings seems to be rather low.[8]

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[8] See Dornbusch and Reynoso (1989).

Privatization and Deregulation

A change in the ownership of productive assets does not represent new investment, that is, the creation of new productive capacity. However, privatization may affect both the level and efficiency of investment in more indirect ways. On the one hand, privatization may involve the introduction of new management techniques and more productive technologies into the productive unit being privatized. Those changes are expected to increase the efficiency of capital. Moreover, privatization policies may be part of a broader package oriented to increasing the role the private sector plays in the economy by creating a more "friendly environment" that encourages capital formation.

Deregulation entails lifting the barriers to entry and exit and licensing, permissions and other bureaucratic impediments to resources reacting to the new incentive structure. In that sense, deregulation seeks an enhanced supply and investment response by making institutional and legal changes in line with price signals.

3.3 Delays in the Response of Investment to Adjustment: The Value of Waiting and Failures of Coordination

Private investment is very sensitive to uncertainty, and to changes in both policies and the rules of the game. That uncertainty follows directly from the irreversible nature of most investment, which can be viewed as a sunk cost, because capital, once installed, is firm- or industry-specific and cannot be put to productive use in a different activity (at least not without incurring a substantial cost). The decision to undertake an irreversible investment in an uncertain environment involves the exercise of an option -- to wait for new information that might affect the desirability and timing of the investment. Clearly, waiting has a value associated with the new information relevant to the decision to invest. Nevertheless, this attitude of "wait and see," while rational from the viewpoint of the individual investor, may have adverse consequences from the view point of the sustainability of the adjustment, which requires a resumption of growth to gain social legitimacy.

Economic instability may have different roots: it may be induced by exogenous shocks such as a deterioration in external conditions or it may be policy-induced by frequent changes in the rules of the game and in the general orientation of policies. It may be also a "chronic" feature in economies where these elements have interacted over a protracted period of time. Among other manifestations, chronic instability is often reflected in high and unpredictable inflation rates, which are usually matched by high relative price variability. From the perspective of adjustment programs, attaining a sizable investment response after relative prices are changed is harder in countries with a long history of instability.

As mentioned, a very important source of uncertainty is the imperfect credibility of policy reforms. This uncertainty is related to the public's perceptions about both the internal consistency of the adjustment program and the government's willingness to carry it out despite the implied social costs. Unless investors view the adjustment program as fully credible in both senses, the possibility of a future policy reversal will be a key determinant of the investment response. An "irreversible mistake" would result if policy were reversed. In conclusion, when investment is irreversible, policy uncertainty can have very adverse consequences for private investment.[9]

Thus, if credibility is low, stabilization and adjustment may entail large social and economic costs -- since the investment response will be insufficient to offset the contractionary bias often present in policies of demand restraint. The result will be a persistent recession until investors become confident that the adjustment measures will be maintained. This pattern seems to be present in the experience of several countries undertaking economic reform examined in section 4.

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[9] The adverse impact of uncertainty on private investment in LDCs has been empirically verified in several recent studies (see Solimano 1989; Faini and de Melo 1990; Lopez 1990; and Serven and Solimano 1992).

Hence, although setting the right economic incentives may be a precondition for investment and growth, it does not guarantee them.[10] In practice, there is a coordination problem in atomistic markets that can mean private investment fails to respond to apparently attractive business opportunities.[11]

It is important to emphasize that, in practice, policy reversal is an endogenous outcome, since current private sector decisions affect future policy actions and ultimately determine the sustainability of the adjustment policy. This point can be illustrated by an example where the economy starts an adjustment program in which confidence is low (the high-confidence scenario is provided below). In this situation, a large real depreciation of the exchange rate -- implemented at the outset of an adjustment program -- will fail to attract investment to the tradeable sector. The only likely result will be a redistribution of income from labor to capital (and to agro-exporters); in addition, because the depreciation may not be sufficient to compensate for the lack of credibility, the increased profits will be reflected in increased capital flight. Social pressure (labor, unlike capital, is highly immobile) and balance-of-payments problems may eventually force a policy reversal, that would confirm the initial skepticism of private investors and the labor's lack of enthusiasm in the program.

The alternative scenario entails high confidence at the beginning that allows a healthy investment response, which in turn validates the adjustment program in terms of higher growth and social support. Thus, there are two

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[10] Obviously, high credibility would speed the investment response and reduce the costs of adjustment. An important, related issue here is the choice between gradual and abrupt stabilization. The former would set initially modest objectives, which could be achieved with near certainty, in order to build the government's reputation. The latter would start with an overadjustment (e.g., an overdepreciation of the exchange rate) to frontload the incentives to resource reallocation (but also the costs of the adjustment).

[11] The reason is an externality that creates a wedge between the social and private returns to investment: higher aggregate investment helps sustain the adjustment effort and therefore results in higher returns to investment, a mechanism that the individual investor will ignore.

possible outcomes, and the final result of the adjustment measures may be either higher growth and fast recovery (adjustment with growth) or protracted stagnation.

Some Implications for Policy

This review of the literature highlights some important implications on the impact of macro policies and structural reforms on private investment. In economies starting from a situation of overexpansion before beginning economic reform, macroeconomic restraint will often involve an initial contraction in private (and public) investment, which is precisely the pattern of investment response observed in the initial phase of an adjustment program.

Structural reforms are expected to enhance the productivity of investment, and this improvement may compensate over time (at least partially) for the initial adverse impact on the volume of private investment associated with macro adjustment. However, it is important to bear in mind that the productivity-enhancing effects of structural reforms often take time to build up.

The above discussion also highlights the problems posed by a lack of policy credibility and by uncertainty in general in triggering a substantial private investment response to adjustment policies. Under uncertainty, the value of waiting increases and thereby delays the response of private investors to a program of economic reform (the delay may also correspond to a failure of coordination). The real challenge is then to design adjustment programs that reduce this waiting period and break that initial self-fulfilling skepticism (or pessimism) to make the outcome of "adjustment with growth" a reality. Policy interventions in this regard may take various forms: a government may launch a program of (sound) public investment in infrastructure to start an otherwise stagnant system moving. Other policies to boost investment are debt reduction, adoption of a free trade agreement,

and domestic deregulation, all of which enlarge the perceived set of opportunities to the private sector.[12]

4. The Experiences of Countries with Adjustment and Reform: The Response of Private Investment

This section looks at the response of private investment in countries that have adopted comprehensive and sustained, programs of economic reform. The economies considered have implemented: (i) successful macroeconomic stabilization, that has reduced and stabilized inflation; and (ii) structural reforms in the direction of market liberalization, removal of large microeconomic distortions and changes in the regulatory environment faced by the private sector.[13] The countries studied are Chile, Mexico, Thailand, Ghana and Bolivia.

Chile: A "Mature" Reformer

Chile initiated a comprehensive set of structural reforms and macroeconomic stabilization in the mid-1970s. For this analysis, Chile has one major advantage over other economies that have followed similar policies in terms of content and intensity (e. g., Mexico, Bolivia and Ghana): more time has elapsed since the reforms were launched so that the perspective within which to judge the policies and their effects on private investment is better.

In 1975, when Chile initiated the more comprehensive reforms, the economy exhibited large macroeconomic imbalances in the form of high inflation

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[12] While transitory investment incentives appear to be the most appropriate tool to address the investment externality involved in the "lack of investment" scenario, in practice they risk destabilizing public finances, which often are a key element in adjustment programs.

[13] The set of countries chosen is by no means exhaustive; rather, it is intended to illustrate the different patterns of response by private investment to adjustment policies. Korea offers another clear example of successful adjustment.

rates and a large fiscal deficit.[14] Those macroeconomic imbalances were corrected, and gradually Chile achieved moderately low inflation (by Latin American standards). The structural reforms adopted in the second half of the seventies included the elimination of price controls and subsidies, a drastic program of trade liberalization, financial reform, privatization and sweeping regulatory changes (all adopted under authoritarian political setting). In addition, the commitment to structural reforms along free market lines remained quite strong throughout the period.[15] The democratic administration that took office in early 1990 committed itself, to maintaining these policies, but with more emphasis on social equity and more balanced relations between labor and capital.

The response of private investment to the stabilization cum liberalization program of the mid-1970s was surprisingly strong (see figure 2). The share of private investment in GDP went from 5.3 percent in 1971-75 to 11.2 percent in 1976-81. In contrast, public investment fell from 10.6 percent in 1971-75 to 5.8 percent in 1976-81. Several hypotheses may explain the response of private investment in the aftermath of reform (and some puzzles remain). First, the political economy was important. The country went from the "Chilean Road to Socialism" program of President Salvador Allende in 1970-73 which involved large-scale nationalization and deepened land reform, to the radical free market experiment launched in 1975 under the military regime. The private sector responded forcefully to the new economic program offered by the military, which assured full respect of private property, deregulation of markets and tight political control (e.g., repression) of political

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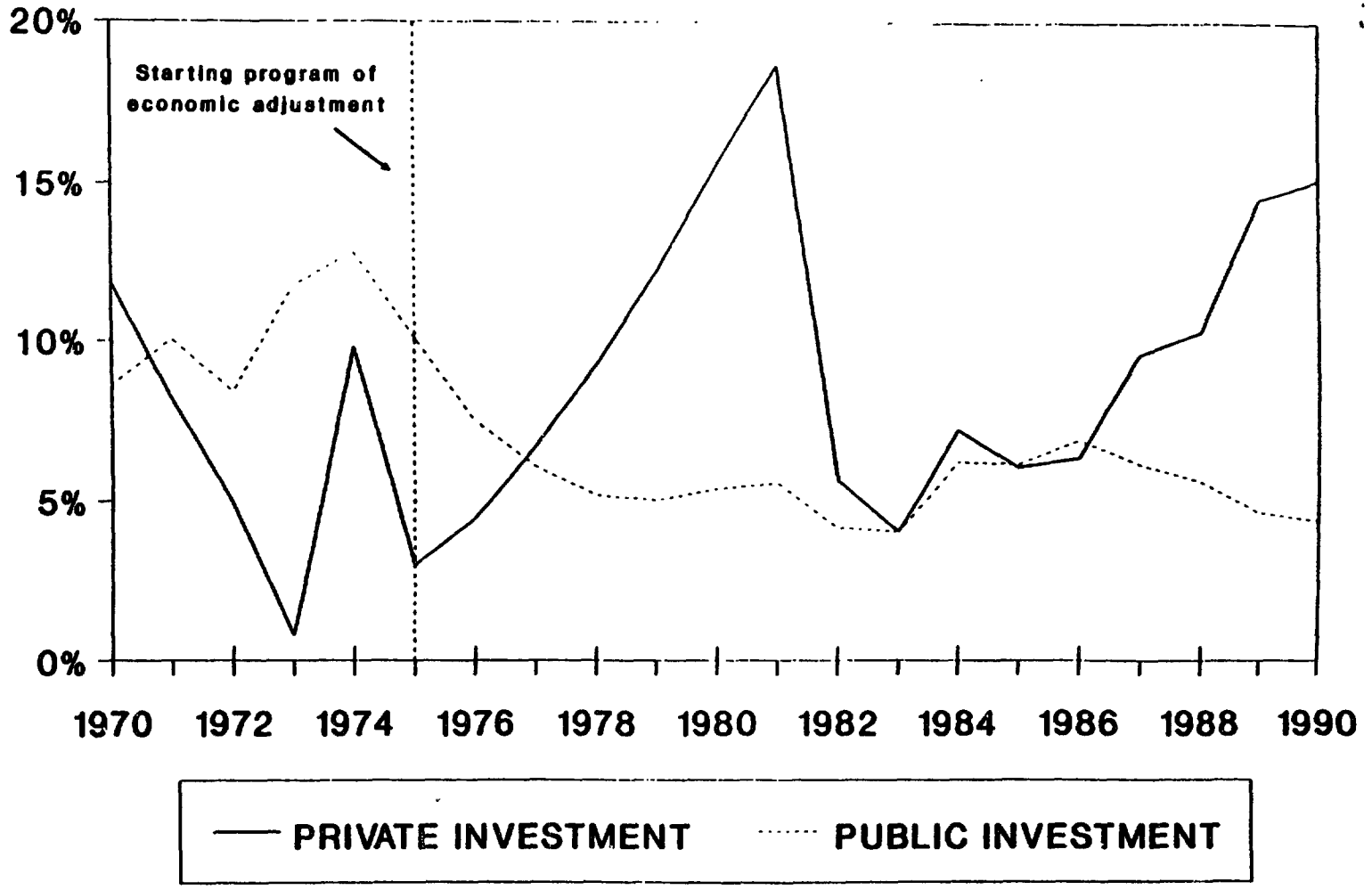
[14] Corbo 1985 and Solimano (1991) for a discussion of the reforms adopted in the Chilean economy in the last two decades.

[15] The crisis of 1982-83 put some of these policies under heavy stress. Some reversals took place, such as increases in tariffs and direct intervention of the financial system. However, as the crisis receded, tariffs were lowered again, and the financial system was gradually deregulated, although with strengthened supervision.

Figure 2

PRIVATE AND PUBLIC INVESTMENT
CHILE
(as percent of GDP)



opposition and the labor unions. Second, the reduction in public investment, which went beyond infrastructure investment, apparently crowded in private investment. Moreover, many of the enterprises nationalized under Allende were returned to their former owners or privatized after 1975.

One of the puzzles in the strong response of private investment in that period is that it coincided with a period of very high real interest rates -- over 25 percent per year in the second half of the 1970s.[16]

In the 1980s private investment followed closely the economic cycles of the period. It boomed in the early eighties, although its composition tilted strongly toward non-traded sectors -- residential construction, structures, and commercial buildings -- following the real appreciation of the peso at the time and the massive capital inflows. That outburst of private investment was unsustainable, however, as it followed signals of profitability -- climbing prices of non-traded goods, real estate and land -- that clearly represented a departure from the fundamentals. This episode clearly shows that not every boom of private investment is sustainable and sound.

During the crisis of 1982-83 investment fell by more than 10 percentage points of GDP with respect to 1980-81. Then, between 1984-86 came the "second phase" of the cycle of private investment, a period in which the recovery was still elusive. The third phase of sustained private investment recovery started after 1987 (see figure 2). The growth performance of Chile was strong in the second half of the 1980s, with GDP rising at an annual rate of 5.5 percent between 1986-90.[17]

The recovery of private investment and growth after the deep crisis of 1982-83 took place in an environment of relative macroeconomic stability with

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[16] However, given the massive rescue operation undertaken by the state in 1982-83 on the internal and external debt acquired by the private sector, the real interest rate effectively paid by the private sector at the end was much lower.

[17] See Corbo and Solimano (1991) for an analysis of the post 1984 recovery in the Chilean economy.
Solimano (1990) provides an econometric analysis of the behavior of private investment in Chile in the 1980s.

moderately low inflation and fiscal discipline. Moreover, the recovery was helped by a reduction in real interest rates (from 25 percent in 1982-85 to 8 percent in 1986-90) and by low real wages. In addition, its composition redirected to the tradeable goods sector following a large real depreciation of the exchange rate (see table 3).

On the external side, Chile enjoyed an improvement in the terms of trade following a bonanza in copper prices starting in 1987, and its foreign debt was reduced by more than 30 percent by the late 1980s (with respect to 1981) as a share of both GDP and exports.

Changes in the Composition of Investment after Reform: Some Empirical Evidence

The focus here has been chiefly on the impact of adjustment on the level of private investment. In Chile, the trade reform and the evolution of the real exchange rate affected the composition of investment in at least two ways: (i) with respect to the allocation of investment across sectors of economic activity; and (ii) in term of the composition of investment between machinery equipment and structures. In addition, some new empirical evidence on the dynamics of capacity creation and capacity destruction in a period of structural change is discussed.

Following the trade liberalization, Chile experienced an initial reduction in the relative share of the manufacturing sector in GDP along with an increase in the share of agriculture. Moreover, within the manufacturing sector, the share in manufacturing value added of several activities with high effective rates of protection (before trade reform) fell while that of other activities with lower protection expanded as a result of a shift to and directed sales to export markets (Levy 1991). In addition, the expansion of non-traditional exports following the reduction in tariffs and the real depreciation of the peso after 1975 led to a relative decline in the share of copper in total exports from around 70 percent of GDP in 1974 to nearly 45 percent in the late 1980s.

Table 2

INVESTMENT AND GROWTH IN CHILE

	1978-81	1982-85	1986-90
Total investment (as percent of GDP)	19.2	10.5	16.1
Private investment (as percent of GDP)	13.8	5.6	10.4
Public investment (as percent of GDP)	5.3	4.8	5.7
Rate of growth of GDP (percent per year)	7.5	-2.9	5.5

Source: IFC, real.

Table 3

MAIN ECONOMIC INDICATORS FOR CHILE
(annual averages)

	1978-81	1982-85	1986-90
Inflation (in percent)	36.1	18.1	23.2
Fiscal balance (as percent of GDP)	-3.0	3.7	0.9
Current account balance (as percent of GDP)	-8.6	-8.7	-4.4
Real interest rate Lending (percent)	26.7	26.1	8.8
Terms of trade (1980=100)	97.9	81.4	85.0
Real exchange rate (1980=100)	104.6	108.7	182.6

Sources: World Bank, country reports and BESD. Note: an increase in the index of the real exchange rate reflects a real depreciation.

These shifts clearly suggest a change in the output mix away from capital-intensive sectors in manufacturing (specifically, the sectors that enjoyed higher protection before the trade reform) and away from copper, an activity that is highly capital-intensive.

Another observed change in the composition of total investment involved investment in equipment (machinery) and structures (buildings); in particular, the data show an increase in the relative share of investment in machinery and equipment in total investment and GDP after 1974 and therefore a decline in the share of investments in structure (table 4).

Recently, De Long and Summers (1991) detected, for a cross-section of developed and less developed countries, significant differences in the contribution to GDP between investment in equipment and in structures. Investment in machinery and equipment made a significantly greater contribution to GDP growth than did investment in structures in the De Long and Summers (1991) study. Hence, this compositional shift would increase the productivity of investment in the aggregate.

The dynamics of capital formation and destruction in an economy facing changes in the structure of incentives and the regulatory environment take place through exit, entry, productivity and scale effects. In recent study, Roberts and Tybout (1990) decompose the change in annual manufacturing output between 1978 and 1985 in Chile according to these components. The authors found that roughly 50 percent of the average annual change in output over the period 1978 and 1985 was explained by the entry of firms -- the "creative" side of Schumpeter's "creative destruction" process. Within this entry effect, nearly half corresponded to new entrants and the other half to switches from old activities. The remainder of the positive change in annual output was explained by productivity and scale effects of incumbents, entrants and exiters.

The "destructive" side of the Schumpeterian process corresponds to the exit of firms: enterprises that disappear and others that switch to a new

Table 4

Investment in Machinery and Equipment in Chile

	Share in total investment (percentage)	Share in GDP (percentage)
1974	27.5	4.8
1978	46.4	6.7
1980	45.4	8.0
1985	32.2	4.8
1988	40.1	6.8

Source: Chile, National Accounts, Central Bank, 1990.

activity. The authors found that the magnitude of the "destructive" part of changes in productive capacity was significant in Chile. This finding raises the question of the extent to which adjustment programs must favor changes in resource reallocation through significant "destruction" of capacity (shock treatment) versus a more gradual process of reallocation of capital. There are several reasons why massive capacity destruction (e.g., through bankruptcies) may be suboptimal. They may entail a large initial increase in unemployment that is socially costly. The financial system may fail to distinguish between insolvent versus non-liquid borrowers. In addition, the evaluation of which firms must go bankrupt needs to be made at equilibrium prices that reflect real scarcities and that are sustainable over time. In Chile, many firms went bankrupt because of an unsustainable appreciation of the exchange rate (early eighties) and/or abnormally high real interest rates.

To sum up, Chile's experience of a decade and a half of economic reform shows that the response of private investment was substantial after the launching of reform in the mid-seventies, although the boom in private investment was clearly unsustainable: excessively tilted toward the non-traded goods sector and financed by borrowing, it ultimately led to a financial crisis in 1982-83. In the eighties, early on a new cycle of private investment took place but collapsed in the crisis of 1982-83 to be followed by a delayed recovery after 1987. That recovery was helped by the realignment in key relative prices (the real exchange and real interest rates), the consolidation in macro stability and structural reforms, the improvement in copper prices and a policy of easy money in 1988-89, a period that coincided with a plebiscite and general election. The political consensus in the early 1990s over a development model that assigns the private sector a greater role in the economy seems to be giving enough guarantees to private investors to keep them investing at home in a context of moderate increased taxation and some realignment of the relations between labor and capital that followed the post-Pinochet regime.

4.1 The Cases of Mexico and Thailand

Mexico and Thailand provide examples of a more delayed (mainly in Mexico), although still considerable, response of private investment to adjustment policies adopted in the 1980s (see table 5 and figures 3 and 4). On average, in these two countries the share of private investment in GDP rose by more than 2.5 percentage points between 1982-85 and 1986-90.

Following the windfall gains from the discovery of oil in the seventies, Mexico engaged in cycle of fiscal expansion, currency appreciation and large debt accumulation that came to a sudden halt in 1982. In that year the country embarked on a drastic program of macroeconomic adjustment, comprising demand restraint and real depreciation of the exchange rate. Since 1985, the government has deepened these policies with trade reform, deregulation and liberalization. The coverage of quotas was reduced from 100 percent of all non-oil tradeable goods produced to less than 17 percent at present, with a similar trend with tariffs (Van Wijnbergen 1991). In addition, the tax system was reformed, regulations on domestic and foreign investments were phased out and the financial system was liberalized. Moreover, a severe program of disinflation was launched in late 1987 that combined additional fiscal adjustment with incomes policies to abate a stubbornly high rate of inflation.[18]

The cycle of private investment in Mexico resembles the one detected for Chile in the 1980s although with a longer investment lag: private capital formation started to decline in 1981, a trend that lasted until 1983; then a "plateau" developed lasting up to 1987; and since 1988 a more sustained increase in private investment started to take place. Thus, with adjustment initiated in 1982, it took nearly six years for private investment to resume.

The long lag in the recovery of private investment in Mexico seems to have been related to various factors: tight credit policies and high real interest rates; considerable excess capacity; the perceived fragility of the

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[18] An analysis of the stabilization program launched in late 1987 appears in Ortiz (1991).

Table 5

INVESTMENT AND GROWTH IN MEXICO AND THAILAND

	Mexico			Thailand		
	1978-81	1982-85	1986-90	1978-81	1982-85	1986-90
Total investment (as percent of GDP)	24.2	16.8	16.8	25.9	24.9	25.2
Private investment (as percent of GDP)	13.7	10.3	12.6	17.4	16.4	18.9
Public investment (as percent of GDP)	10.5	6.5	4.2	8.5	8.5	6.3
Growth rate of GDP (percent per year)	8.7	0.3	1.2	6.6	6.1	8.1

Source: IFC, real.

Figure 3

PRIVATE AND PUBLIC INVESTMENT
MEXICO
(as percent of GDP)

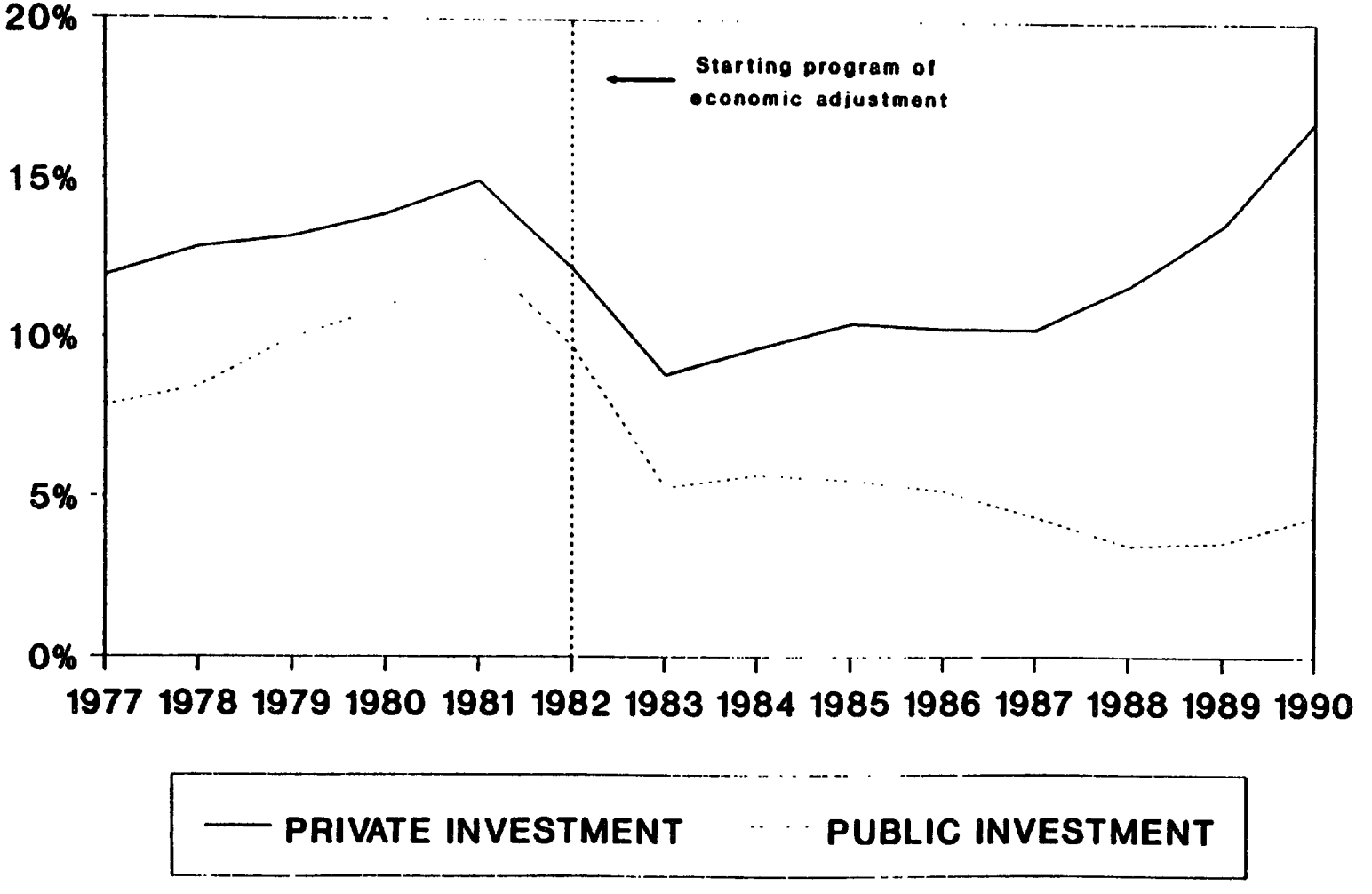
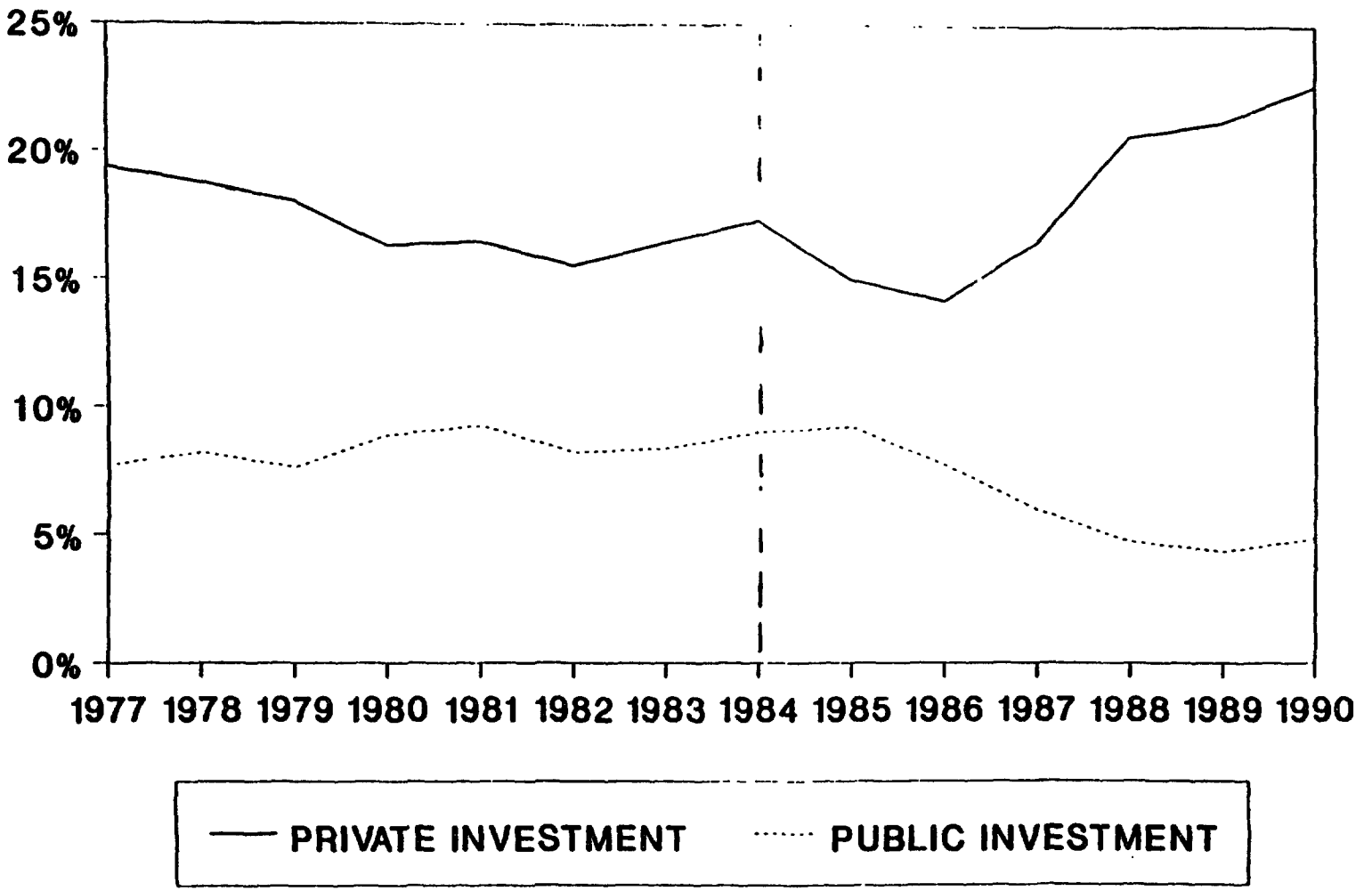


Figure 4

PRIVATE AND PUBLIC INVESTMENT
THAILAND
(as percent of GDP)



balance-of-payments in the initial years of reform; the debt overhang; and the drastic decline in public investment (nearly 9 percentage points of GDP between 1981 and 1989), with a significant part of the decline consisting of a cut in investment infrastructure. The acceleration in the recovery of private investment since 1988 seems to reflect a gradual rebuilding of confidence in the consolidation of the reforms, associated particularly with the success in bringing down inflation. Other factors were the announcement of a debt reduction deal in the context of the Brady initiative in 1989, the hastening of privatization and deregulation and the initiative for a free trade agreement with the US, which drastically enlarges the opportunities for domestic and foreign investment.

Thailand is a case of gradualism in macro policies. In 1984, the government devalued the exchange rate by 14 percent, supported by fiscal restraint. In the early eighties Thailand had undertaken other reforms in several areas: agriculture; energy; public enterprises; trade; and changes in the fiscal incentives for investment. In contrast to other adjusting countries, Thailand decelerated its rate of GDP growth, somewhat, to 6.1 percent per year between 1982 and 1985. Thereafter, growth resumed forcefully at an annual rate of 8.1 percent (1986-90). Between 1984 and 1986, private investment, fell by nearly 3 percentage points of GDP, but then recovered quite strongly (see figure 4). Macroeconomic adjustment in Thailand was non-inflationary, and large fiscal imbalances were avoided. These factors were undoubtedly supportive of a high and stable pace of capital formation.

Regarding the impact of reform policies on the composition of investment, there was a steady increase in the share of investment in equipment and machinery in total investment after the mid-seventies. In addition, the structural change in manufacturing did not occur with an absolute reduction in the level of output for the declining sectors.

Summing up, Mexico is a case of major macroeconomic adjustment and radical reform in the eighties. While private investment suffered initially in the adjustment program, it recovered slowly afterwards. After 1988 the

recovery of private investment gained more momentum, helped by the consolidation of the reforms, the debt reduction deal, the deepening of the privatization and deregulation, and the initiative for a free trade agreement with the United States. In contrast, Thailand undertook gradual reforms that implied a less dramatic rupture with previous policies and pursued this process in a context of macroeconomic stability with some adjustments in the exchange rate and fiscal policies. Consequently, the cycle of private investment was milder.

Bolivia and Ghana

In Bolivia and Ghana, the response of private investment to adjustment policies has been modest. These two small economies have annual levels of per capita income below US$600 and a serious lack of human capital and physical infrastructure. Their industrial base is small; mining, services and agriculture generate the bulk of national income. Bolivia suffered mounting economic instability and negative GDP growth.

In the first half of the 1980s, this process culminated in hyperinflation in the first eight months of 1985. In August of that year the government launched a drastic and successful anti-inflationary program that produced a decline in inflation from more than 25,000 percent in 1985 to an average annual rate of 16.5 percent in the period 1987-90 (see table 6). The government followed the anti-inflationary program with a series of structural adjustment policies that included trade liberalization (tariffs rates were reduced after 1985 to a range between 5 percent and 10 percent) and the elimination of most of the system of price controls, state subsidies and guaranteed prices. Public sector prices were adjusted to reflect opportunity costs, the ceilings on interest rates were removed, and domestic and foreign commercial banks were allowed to receive deposits denominated in dollars.

Ghana provides a particular case in Africa of far-reaching economic reform along free market lines. In April 1983, the government launched a comprehensive plan of economic stabilization, oriented toward correcting the

Table 6

INVESTMENT AND GROWTH IN BOLIVIA AND GHANA

	Bolivia			Ghana		
	1978-81	1982-85	1986-90	1978-81	1982-85	1986-90
Total investment (as percent of GDP)	15.6	7.2	5.5	9.6	7.6	11.0
Private investment (as percent of GDP)	6.2	3.4	2.1	5.1	5.9	5.8
Public investment (as percent of GDP)	9.4	3.8	3.5	4.5	1.8	5.2
Growth rate of GDP (percent per year)	0.8	-2.8	1.5	0.7	0.6	5.6

Source: IFC, real.

Table 7

MAIN ECONOMIC INDICATORS FOR BOLIVIA AND GHANA

	Bolivia			Ghana		
Annual Averages	1978-81	1982-85	1986-90	1978-81	1982-85	1986-90
Inflation (GDP deflator)	24.1	2,680.9	16.5a	59.5	62.2	33.4
Fiscal balance (as percent of GDP)	8.3	20.4	5.4	6.2	2.3	-0.8
Curr. account balance (as percent of GDP)	8.6	6.9	7.9	0.6	2.2	5.6
Real interest rate Lending (percent)	N.A.	-71.2	16.3	-33.3	-25.4	-1.9
Terms of trade (1980=100)	85.1	87.9	56.4	113.9	87.0	85.4b
Real exchange rate (1980=100)	100.8	62.6	136.2	94.8	76.0	374.1b

Note: An increase in the real exchange rate index means a real depreciation.
a=1987-90
b=1986-89
Sources: World Bank, country reports, and BESD.

major macro imbalances and main micro-distortions. By late 1986, these policies were deepened by a set of policies oriented toward increasing the reliance on market mechanisms and reducing the role of the state in economic activity.

In Bolivia, the decline in private investment stopped after the reform program was begun in 1985, but it remained very depressed afterwards (2.1 percent in the period 1986-90, figure 5).[19]

In Ghana, the share of private investment in GDP was 5.8 percent in the period 1983-90, up from 4.8 percent in the period 1970-82. There was an initial increase in private investment after 1983, followed by a downturn after 1986 and a more forceful recovery after 1989. Moreover, the increase in investment was concentrated mainly in gold and cocoa (Kapur, et al. 1991).

Ghana managed to grow at an annual rate of 5.4 percent between 1983-90 (and 5.6 percent in the period 1986-90). This growth rate was a significant improvement over the previous trends of average negative growth during 1970-82. In the period 1983-90, the growth was driven mainly by the industrial sector (it grew at 8.6 per year) and the services sector (with a rate of 7.5 percent per year).[20] In Bolivia, the rate of growth of GDP was 1.5 percent per year in 1986-90, still below the rate of population growth. Nevertheless, this level was a favorable reversal of the trend of negative GDP growth of the

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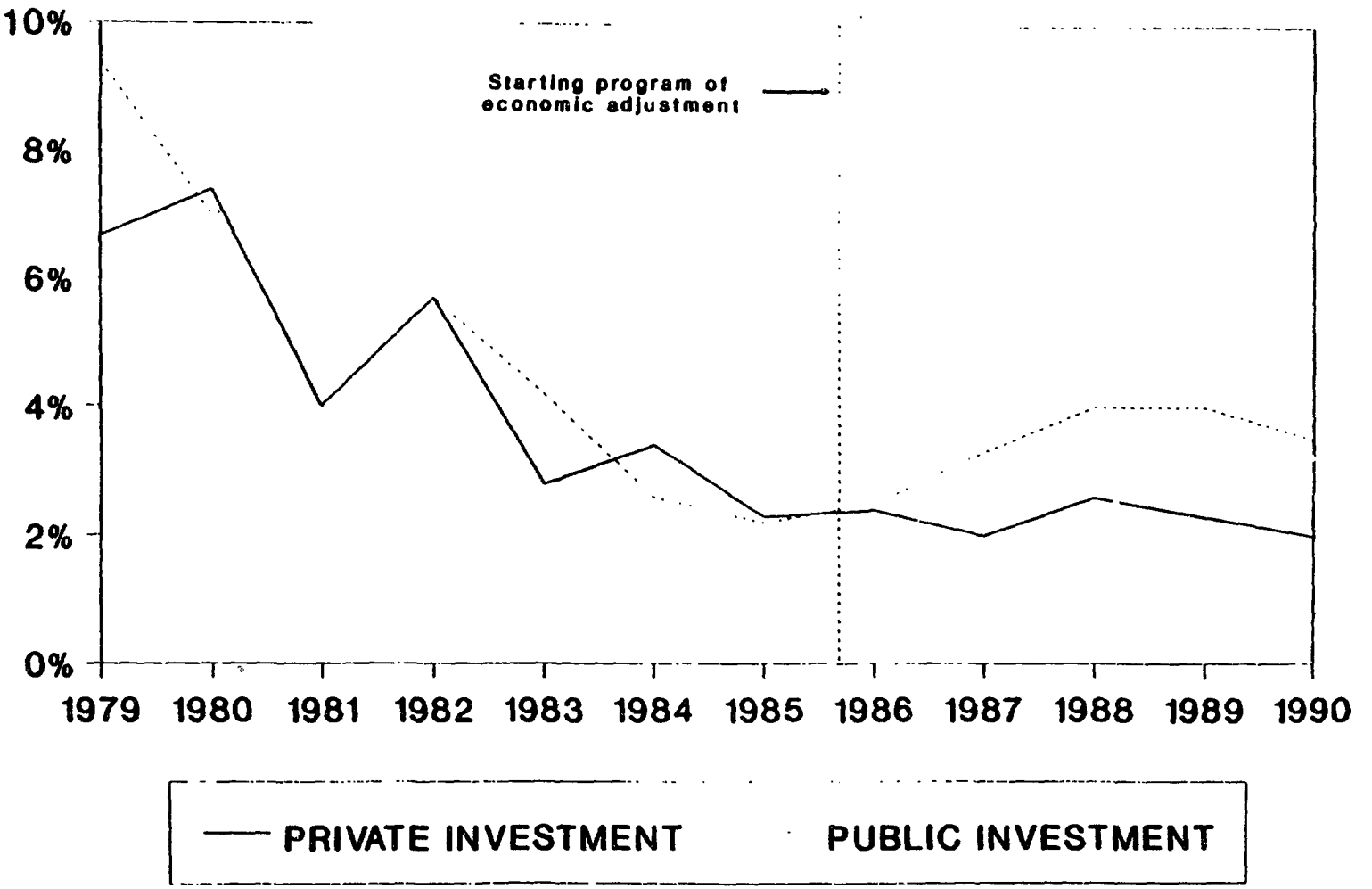
[19] The nominal investment share in nominal GDP was around 4 percent of GDP in that period. The discrepancy between nominal investment ratios was attributable to a sharp increase in the real price of investment (the ratio of the investment deflator to the GDP deflator) in the second half of the eighties, associated with a large real depreciation of the exchange rate. The higher component of imported machinery and equipment in total investment relative to the intensity, of imported capital goods and inputs in GDP (on the production side) made the real price of investment very sensitive to changes in the real exchange rate.

[20] The fastest growing sector in the economy was wholesale and retail trade (in the services sector), which grew at an annual average rate of 11.1 percent between 1983 and 1990, (Kapur, etal 1991).

Figure 5

PRIVATE AND PUBLIC INVESTMENT
BOLIVIA
(as percent of GDP)



first half of the eighties, before the launching of the adjustment program.[21]

In terms of the causes of the low response of private investment in Bolivia, on the macro side, three factors can be identified as important:

- The relatively large fiscal deficit (it averaged 5.4 percent of GDP in the period 1986-90), which tended to crowd out private investment.
- The real interest rates, both in peso and dollar-denominated assets.[22] These hampered the recovery of capital formation, as confirmed by firm-level evidence for Bolivia (see below).
- The sharp deterioration in the terms of trade in the period 1986-90 with respect to 1982-85. The negative income, fiscal and balance of payments effects of an adverse terms of trade shock in general depress investment.[23]

The high real interest rates for dollar-denominated assets held in the Bolivian banking system, as well as the fact that around 80 percent of the assets and liabilities of the commercial banking system with the private sector were denominated in foreign currency, have been attributed to an underlying credibility problem (Morales 1991; Calvo and Guidotti 1991).

A recent survey looked for qualitative information at the firm level in Bolivia to shed light on the weakness of the private investment response in the aftermath of the reform.[24] The survey covered 80 enterprises operating

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[21] The aggregate figures on growth may hide some positive sectoral supply response after adjustment. Bolivia's non-mineral exports grew at an annual average rate above 35 percent per year in the period 1987-90, a trend that contributed to export diversification. See Mierau-Klein and Page (1991).

[22] Calvo and Guidotti (1991) computed that 20 months after the start of the stabilization a one dollar investment in Bolivia (in a dollar-denominated account) would have yielded, ex post, a return of 50 percent over the yield of investing one dollar at the LIBOR in the same period.

[23] See Cardoso (1991) and Warner (1990) for econometric evidence on the negative investment effect of a deterioration in the terms of trade.

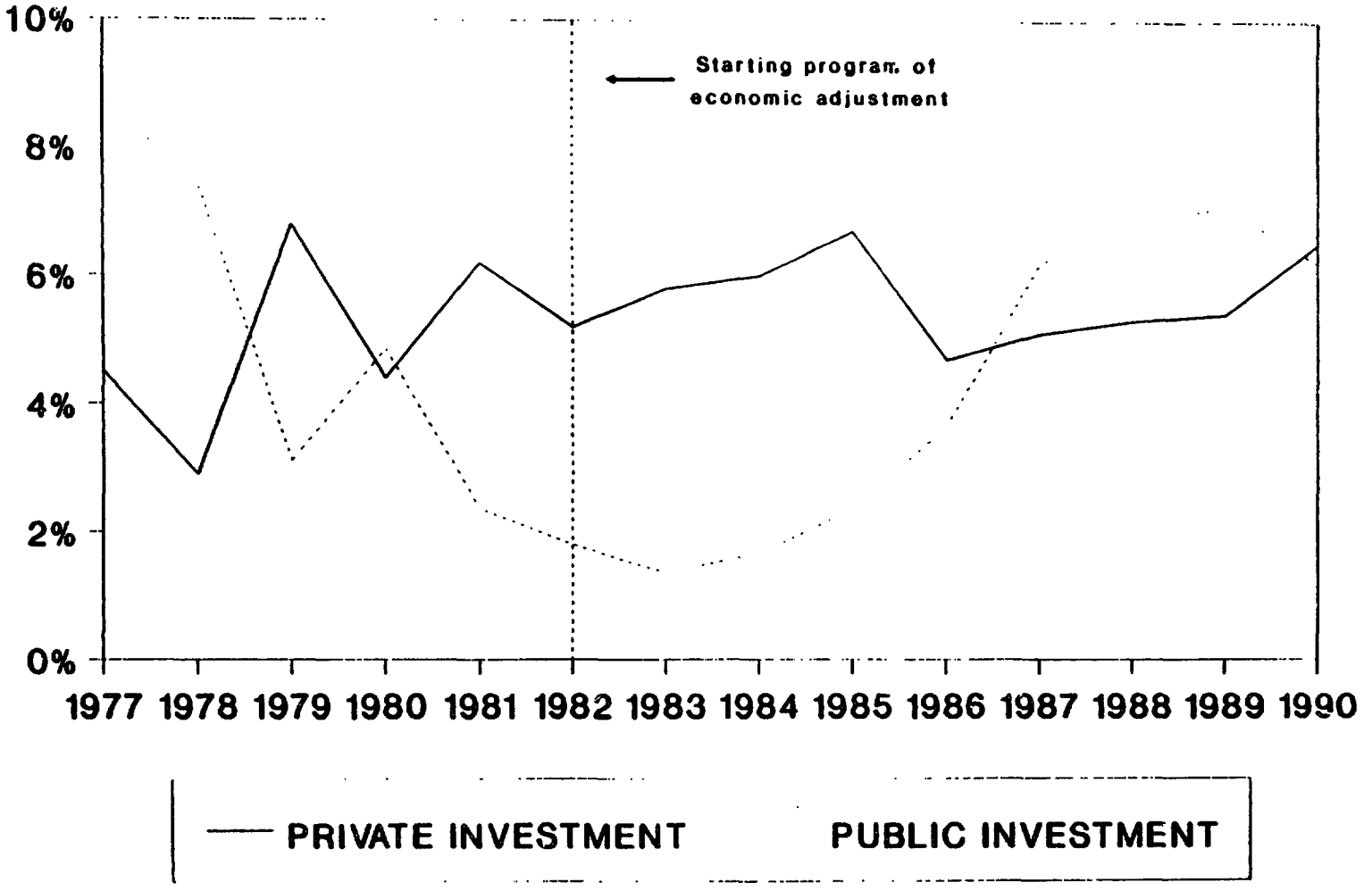
[24] The survey, addressed directly to the managers of enterprises solicited their perception on the main constraints to increasing capacity utilization and investment in their firms.

in agriculture (14), mining (7) and manufacturing (59). The survey identified six main obstacles to a recovery of private investment: (1) According to the survey, the main constraint on investment in all sectors was the high real cost of credit and/or restricted access to bank credit (around 40 percent of investment outlays by the firms in the sample were financed by bank credit). The higher cost of financing was a more binding constraint for "outsider" firms (namely, firms with no representation on the boards of commercial banks). (2) There was a lack of adequate infrastructure, particularly transportation (railways and roads), a factor that is more important for exporting firms. (3) The high cost of energy was another important obstacle to production and investment for all firms. (4) The regulatory constraints, such as barriers to entry, expansion and exit, were seen considered as a relevant obstacle for investment according to the firms interviewed. Licensing, control systems and permissions are costly and time-consuming, and then affect small enterprises more than large and established ones. (5) "Insufficient domestic purchasing power" was considered to be an important additional constraint on investment in agriculture and manufacturing particularly (the survey reported an average rate of capacity utilization in manufacturing of 60 percent in 1986-88 for firms classified at the four-digit ISIC level). Finally, (6) "high labor costs" appeared at the lower end of the ranking of the constraints on investment for firms in Bolivia.

Regarding the response of private investment in Ghana, it is unclear whether the macroeconomic environment was unsupportive. An important effort of fiscal adjustment was undertaken in the program of economic reform (the fiscal deficit, excluding external assistance, was less than 1 percent of GDP in 1986-90), and inflation, although still moderately high -- around 33 percent in 1986-90 -- clearly did not reach the extreme level that patently destroys capital formation. Moreover, Ghana enjoyed ample external financing and aid in the second half of the eighties, and the current account deficit increased from an average of 2.2 percent of GDP in 1982-85 to 5.5 percent of GDP in 1986-90. A factor that may explain the low rates of private investment

Figure 6

PRIVATE AND PUBLIC INVESTMENT
GHANA
(as percent of GDP)



in Ghana is the large part of foreign financing that went to finance an increase in public investment (public investment went up from 1.8 percent of GDP in 1982-85 to 5.2 percent of GDP in 1986-90). Greater proportions of that external financing could have gone to finance private investment, although it is widely recognized that the country needs an important improvement in its domestic infrastructure to, among other things, promote private investment.

At the microeconomic level, a recent survey covering 31 large firms and 82 micro and small enterprises points out that the main constraint -- almost regardless of firm size -- on a strong supply and investment response in recent years in Ghana has been the lack of both working capital and credits to finance capacity expansion; another factor identified as important for current production and investment was the availability of raw materials although this may be related to the lack of working capital.

Insufficient internal demand for large and small firms, in response to the import liberalization was also considered to be an important constraint in the survey. Regarding the effect of business regulations, medium- to large-scale firms responded that the regulatory environment became more supportive of business formation and had been a significant contribution of the program of economic reform for boosting private investment. The experiences of Bolivia and Ghana clearly point out that establishing market-oriented rules, may, by itself be insufficient to convince the private sector that real investment is worthwhile. In a low-income economy without fully consolidated institutions to assure medium-term political and economic stability, economic reform is definitely a difficult task. The difficulty in getting a quick and sizeable private investment response to the new policies is just another manifestation of that point.

5. Summing-Up: A Cycle of Private Investment during Adjustment

The empirical evidence reviewed here suggests that a cycle of private investment takes place during the implementation of adjustment programs. The cycle, in a stylized way, is characterized by three phases:

- **Phase I:** The starting conditions are important: in economies in which the adjustment policies were preceded by a period of domestic expansion -- Mexico, Chile in the early eighties, and Thailand -- private investment tended to decline, initially, after adjustment. That decline may last around one or two years. In economies in which the adjustment policies were preceded by a period of decline in economic activity and investment -- Bolivia and Ghana -- adjustment entails an initial increase in private investment.

- **Phase II:** After the initial contraction or expansion, private investment reaches a plateau with no substantial increases (or declines) in private investment. That period lasted three years in Chile in the mid-eighties and four years in Mexico. In Bolivia, private investment has not yet gone, beyond this phase.

- **Phase III:** This period is characterized by a sustained increase in private investment. In Chile it began after 1987, in Mexico and Thailand after 1988.

This cycle shows that, in general, in economies subject to major changes in policy regimes, private investors are slow to engage in irreversible investment decisions Private investors develop an attitude of 'wait and see' until gradually they become convinced that the new rules and institutions brought about by the program of economic reform, are consolidated. In addition, when individual investment decisions are interdependent, some mechanism for coordination is needed to avoid a low investment trap after adjustment. The length of the waiting period varied from country to country -- it was shorter in Thailand and longer in Mexico, Bolivia and Ghana -- but the common pattern was a delay of several years in the take-off of private investment following adjustment (table 8). The analysis also shows that high real interest rates, substantial excess capacity, a fragile balance of payments, the debt overhang, and large cuts in complementary public investment are important factors that tended to delay the sustained recovery of private investment.

Table 8

CYCLE OF PRIVATE INVESTMENT

Country/ starting adjustment program	Phase I		Phase II	Phase III
	Initial expansion	Initial contraction	"Plateau"	Sustained expansion
	(no. of years)		(no. of years)	(no. of years until 1990)
Chile				
1975		1		6[a]
1982		2	3	4
Mexico				
1982		2	4	3
Thailand				
1984		2		3
Bolivia				
1985	1		4[b]	
Ghana				
1983	2		5[b]	

[a] Until 1982.
[b] Until 1990.

Source:

1. The data on investment covers 41 developing countries in Latin America, Africa and Asia. The data on public investment includes investment by the central government and public enterprises; the private and public investment shares in GDP are the ratios of real investment over real GDP. This is to control for the increase in the real price of capital associated with the real depreciations of the exchange rates and many developing countries in the 1980s.

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